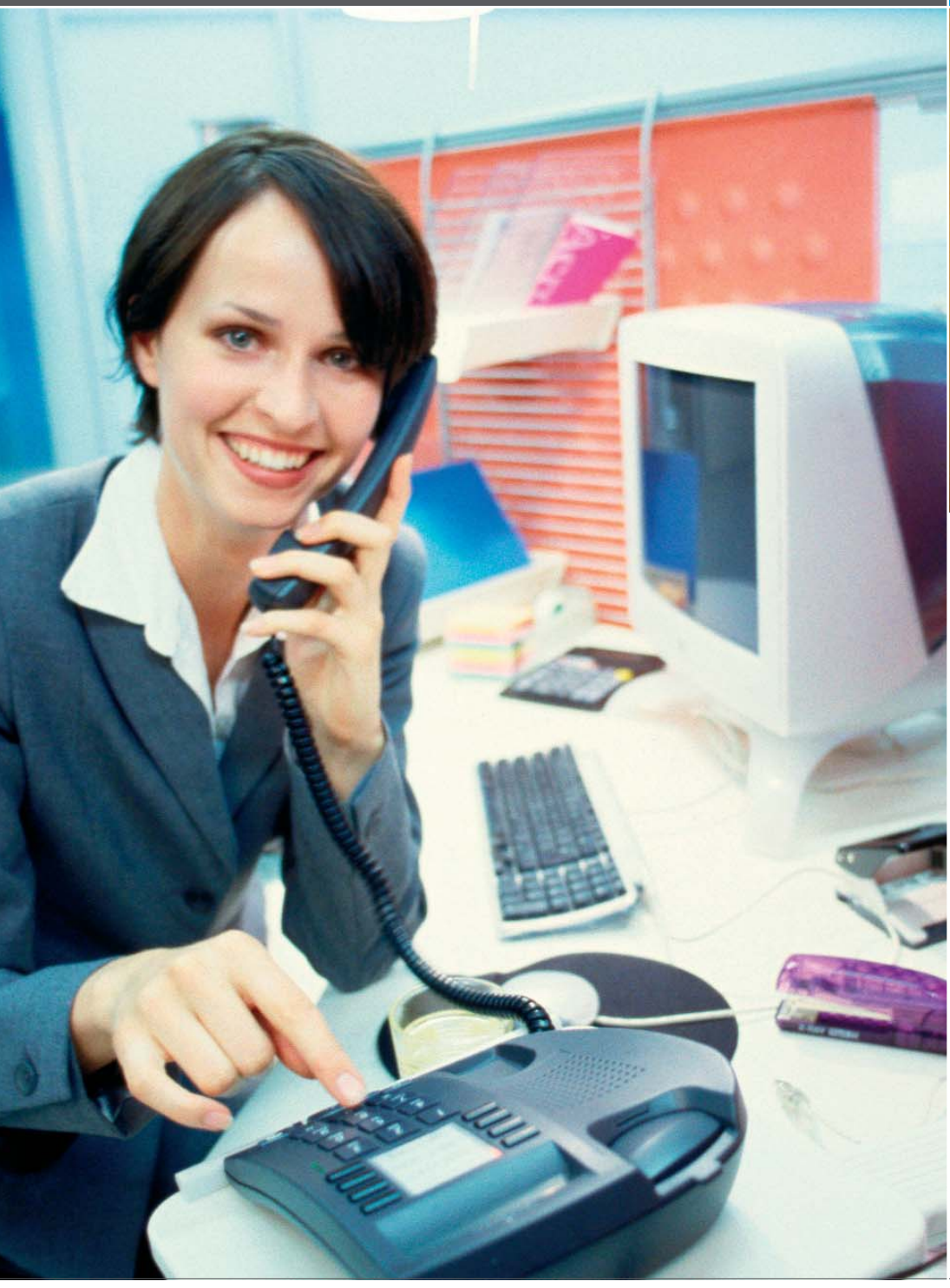
DAIKIN
AIR CONDITIONING

Daikin Airconditioning UK Ltd

HRV

Heat Reclaim Ventilation R-410A



VAM-FA
VKM-GM
VKM-G

Table of Contents

INTRODUCTION 4

GENERAL HRV FEATURES 6
- Energy Efficiency 6
- Design Flexibility 7
- Clean Air 9

VKM FEATURES 10
- Energy Efficiency 10
- Design Flexibility 11

LINE-UP 12

CONTROL SYSTEMS 13
- Individual Control Systems 13
- Centralised Control Systems 16

SPECIFICATIONS 18
- VAM-FA 18
- VKM-GM 19
- VKM-G 20

OPTIONS 21

Daikin Airconditioning UK Ltd

Daikin Airconditioning UK Ltd is a wholly owned subsidiary of Daikin Europe N.V.. The focus of our business is sales and distribution of Daikin air conditioning products whilst fully utilising the advantage of our European Group Manufacturing Division. Daikin Airconditioning UK Ltd is a nation wide organisation with its headquarters in Weybridge, Surrey. Strategically situated regional sales offices achieve efficient response combined with administration, distribution and field quality services departments.

Daikin Europe N.V.

Daikin Europe N.V. is the European sales and manufacturing headquarters responsible for distribution of air conditioning equipment for residential, commercial and industrial use. As a 100% subsidiary of Daikin Industries Ltd (Japan), a global leader in the air conditioning systems industry, its main focus is to respond to the evolving requirements of customers throughout Europe, Russia, Africa and the Middle East.

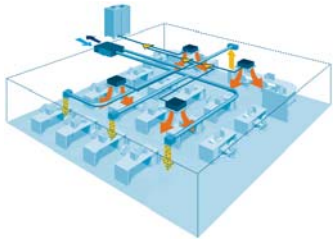
Environmental Consciousness

Enhancing the present - safeguarding the future
Throughout the last 50 years or so the basic building blocks of life - air, water and the earth - have been systematically subjected to increasing levels of pollution with little regard to their potentially devastating effects on future generations.

Recently however, concern has grown regarding climate changes, acid rain, water and air pollution and the constant degradation of Earth's natural resources. The very technology that created these problems is now being harnessed to halt and reverse them. Depletion of the ozone layer and global warming have been highlighted and are now being addressed. Government legislation prohibiting the use of toxic substances and the generation of pollutants has slowed down the destruction of the environment.

Daikin Europe is proud to have been pro active in this respect, closely following its Japanese parent in implementing policies that have often pre-empted official legislative codes and directives. As a result, a culture of "environmental management" has since 2001, played a key role in the company's day to day activities and development strategies.

Top management commitment is reflected in the establishment of a number of action plans, which are now strictly observed and implemented throughout the Daikin Group.



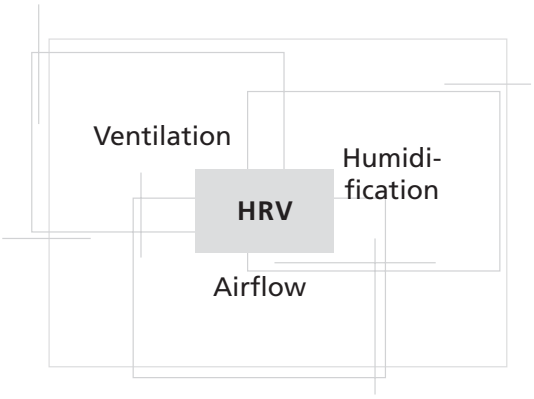
HRV helps create a high quality environment by interlocking with the air conditioning system

The Daikin HRV (Heat Reclaim Ventilation) recovers heat energy lost through ventilation and holds down room temperature changes caused by ventilation, thereby maintaining a comfortable and clean environment. This also reduces the load on the air conditioning system and conserves energy.

In addition, the HRV interlocks with Daikin's VRV system, Sky Air and other air conditioning systems and automatically switches over ventilation mode, further increasing the effects of energy conservation. HRV operation has been centralised on the air conditioner remote control allowing total control over air conditioning and ventilation via a simple configuration.

The current line-up includes models with DX coil and/or humidifier - the DX coil helps prevent the direct impact of cold airflow upon personnel during the heating cycle and vice versa. High static pressure enhances design flexibility.

Components of Indoor Air Quality



New Features VKM unit

- Humidifier
- DX coil
- High static pressure

Line-up

Air flow rate (m^3/h)	150	250	350	500	650	800	1000	1500	2000
VAM-FA Ventilation	✗	✗	✗	✗	✗	✗	✗	✗	✗
VKM-GM: Ventilation, DX coil & humidifier				✗		✗	✗		
VKM-G: Ventilation & DX coil				✗		✗	✗		

II. General HRV (VAM+VKM) Features

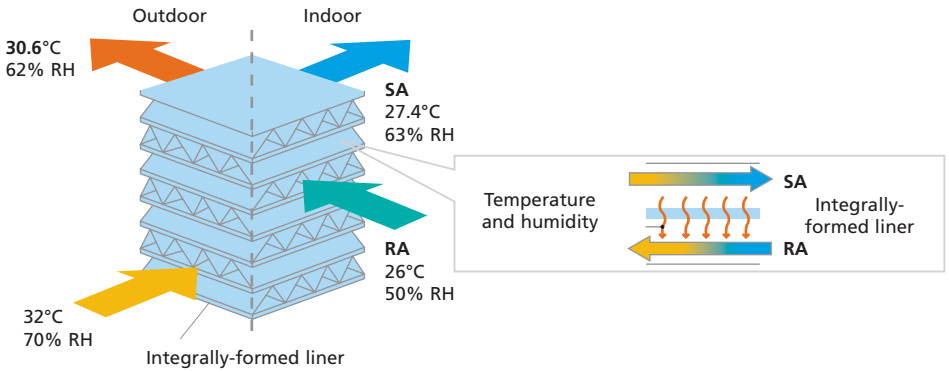
1 Energy Efficiency

- **Over 30 % Size Reduction**
  Use of the high efficiency paper (HEP) element and optimized design of the fan and airflow passages have resulted in matchless compactness without detriment to the 28% or so reduction in air conditioning load achieved by previous models. A reduction of up to 40mm in height allows the main unit to fit easily into limited spaces such as ceilings
  On average 28 % air conditioning load reduction (maximum 40 %):
  - 20% by operating in total heat exchange mode (in comparison with normal ventilation fans)
  - a further 6 % by auto-ventilation mode changeover switching
  - a further 2 % by pre-cool, pre-heat control (reduces air conditioning load by not running the HRV while air is still clean soon after the air conditioner is switched on.)

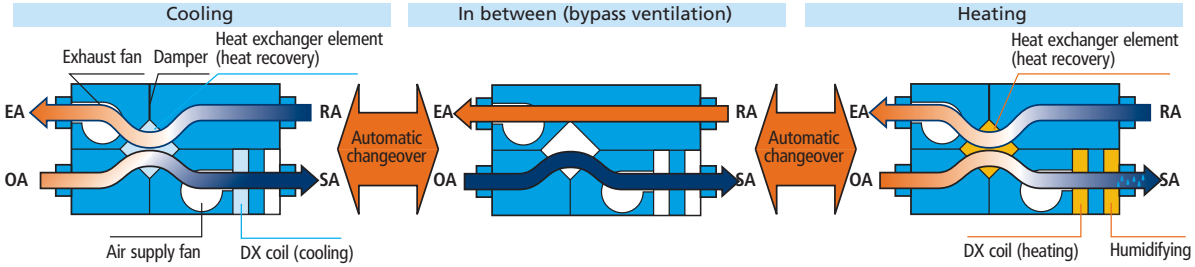
  Note: the values mentioned above may vary according to weather and other environmental conditions at the location of the unit's installation

- **Proprietary Developed HEP Element**
  The heat exchange element uses a high efficiency paper (HEP) possessing superior moisture absorption and humidifying properties.
  The heat exchange unit speedily recovers heat contained in latent heat (vapour). The element is made of a material with flame resistant properties and is treated with an anti-moulding agent.

Operation of the heat exchanger element



- **Automatic Changeover to Efficient Operation Patterns**
  Operation automatically switches to the optimum pattern to suit prevailing conditions

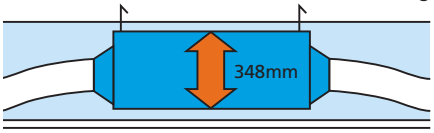


2 Design Flexibility

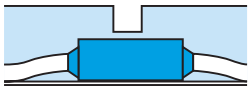
- **Outdoor Operation Temperature down to -15°C**
  If the outdoor air suction temperature falls below -10°C, the unit switches to intermittent operation to prevent freezing of the heat exchanger element and dew condensation within the unit.
  Intermittent operation = a thermistor (standard equipment) within the unit detects the outdoor air temperature. Unit operation varies according to the detected temperature.

- **Slim Design**
  The slim design of the HRV unit enables it to be mounted in narrow ceiling voids and irregularly shaped spaces.

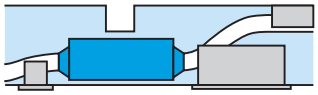
• Installation under the floor of a small building



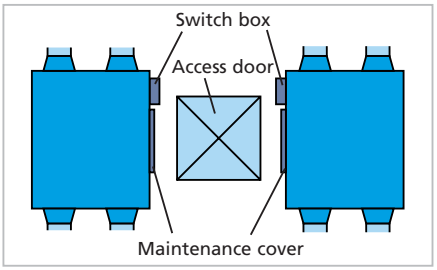
• Installation under a beam



• Installation in an irregular space



- **Simple Design and Construction**
  The unit can be installed either horizontally or upside down in accordance with the conditions of the location.
  A 450mm square inspection hatch enables maintenance and heat exchange element replacement to be performed with ease.



- **Quiet Operation**
  Sound pressure levels are remarkable low at 20.5dBA (VAM150FA)

dB(A)	Perceived loudness	Sound
0	Treshold of hearing	-
20	Extremely soft	Rustling leaves
40	Very soft	Quiet room
60	Moderately loud	Normal conversation
80	Very loud	City traffic noise
100	Extremely loud	Symphonic orchestra
120	Threshold of feeling	Jet taking off

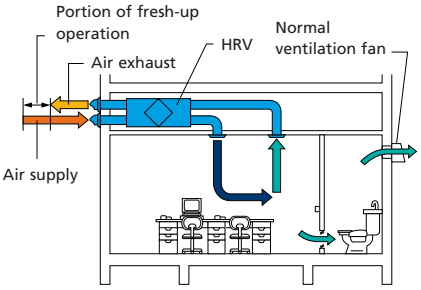
Daikin units

3 Clean Air

- **Fresh-Up Operation**
  The user can select between 2 fresh-up modes via the remote control

1. Supply rich mode:

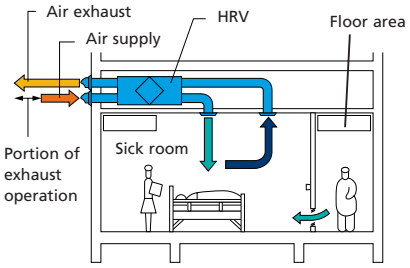
Raising the air supply maintains proper room pressure to prevent back-flow of toilet/kitchen odours or moisture inflow.



eg. Office

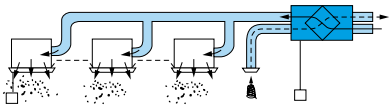
2. Exhaust fresh-up:

Raising exhaust air decreases room pressure to prevent the leaking of odours or floating bacteria into other rooms.



eg. Hospital

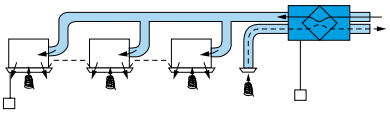
- **Dust Prevention**
  Prevents dust from falling thanks to directly mounted ducts



OFF Dust

With Competitors' Products

When conventional total heat exchange units, which are independently operated using a dedicated remote control, are directly connected by a duct, there is a possibility of dust falling from the air filter of the indoor unit when the air conditioner is OFF.



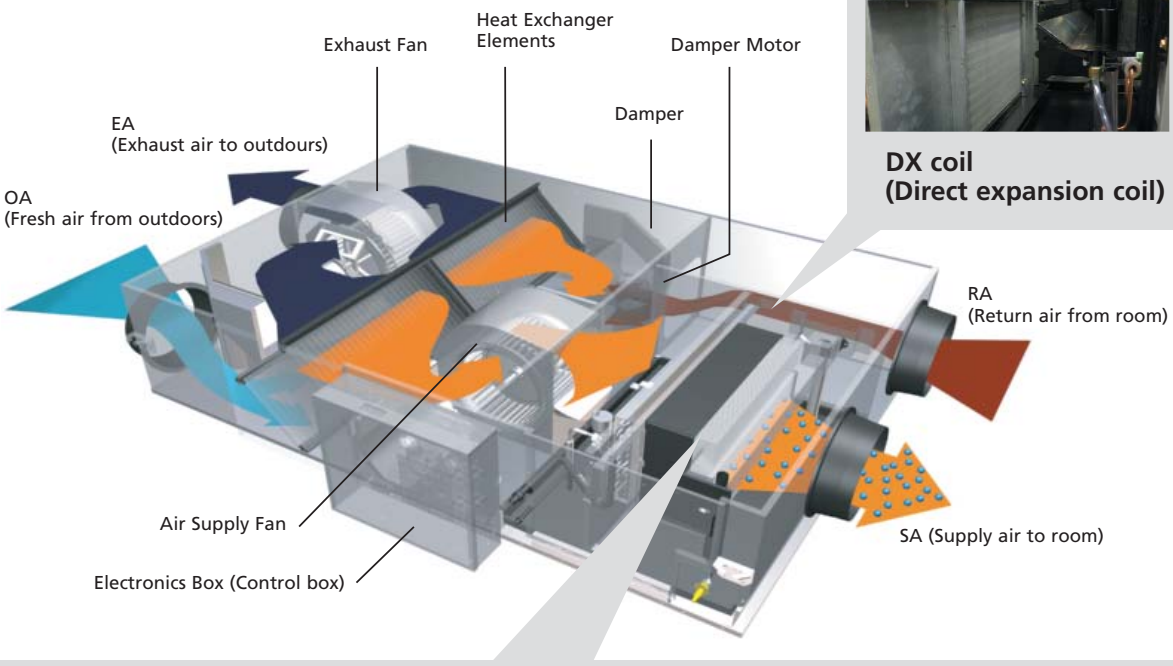
Blowing mode No dust is blown out

With HRV

When the HRV is operating independently, the fan in a interlocked indoor unit continues turning, so dust does not fall from the air filter.

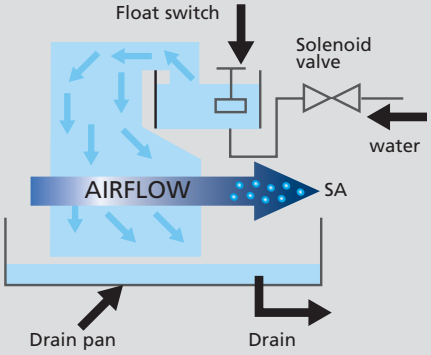
- **Filter Cleaning**
  A signal on the remote control indicates when the air filter needs cleaning

III. VKM Features



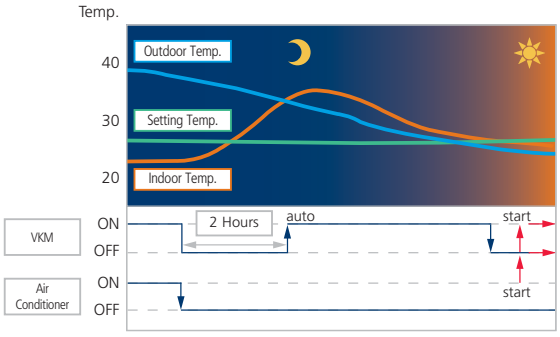
DX coil
(Direct expansion coil)

Humidifier element:
Utilizing the principle of capillary action, water is permeated throughout the humidifier element. The heated air from the DX coil passes through the humidifier and absorbs the moisture

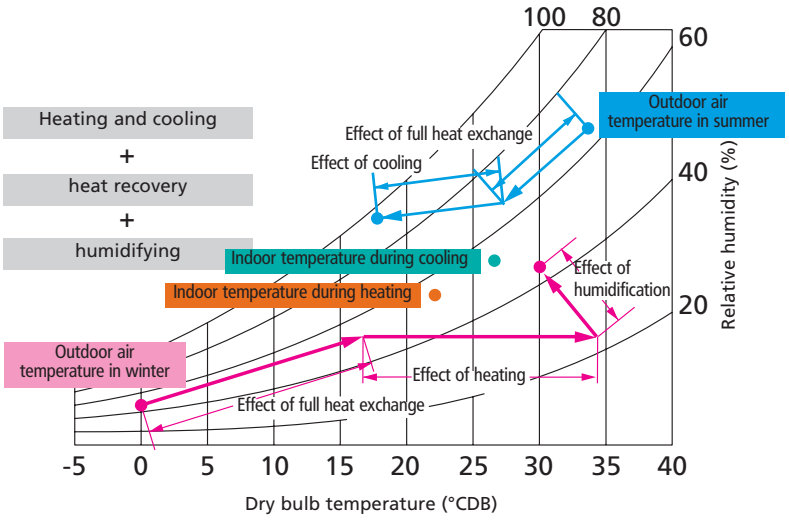


1 Energy Efficiency

- **Night time Free Cooling Operation**
  Night time free Cooling Operation is an energy conserving function operating at night when the air conditioning is switched off. By ventilating rooms containing office equipment that increases room temperature, night purge reduces the cooling load when air conditioning is switched on in the morning.
  - Night time free cooling operation works only if connected to Multi or VRV systems.
  - Night time free cooling operation is factory set to "off" but can be activated by your Daikin dealer on request.

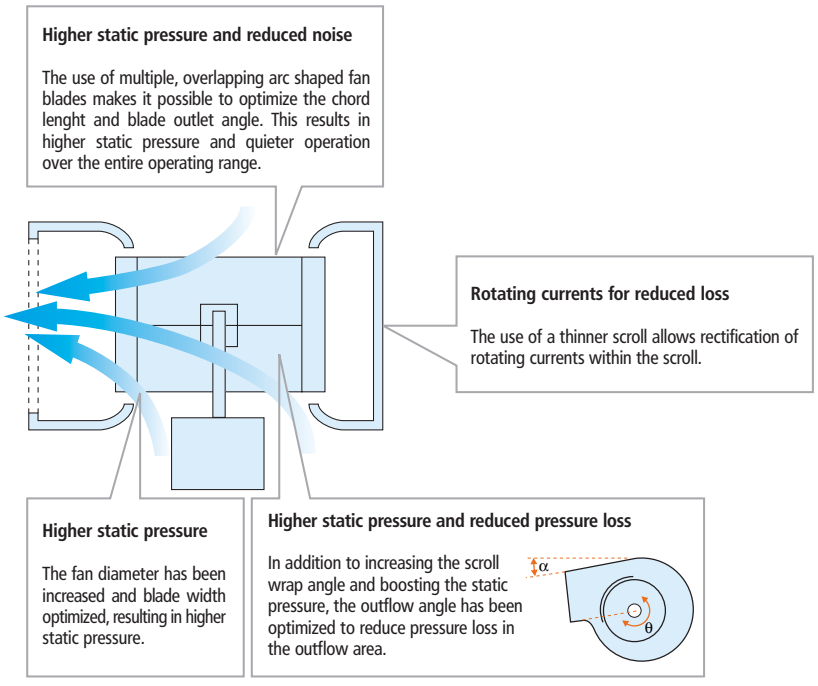


- **Efficient Outdoor Air Introduction with Heat Exchanger and Cooling/Heating Operation**
  Indoor unit with outdoor air treatment
  The temperature can be brought close to room temperature with minimal cooling capacity through the use of outdoor air



2 Design Flexibility

- **High Static Pressure**
  Modifications to the fan, including the use of multiple arc blades, a thinner scroll and optimized fan scroll angle, help to boost efficiency.
  Dramatically higher static pressure is achieved due to improved fan performance. This reduces limitations on unit location and allows more flexibility in duct design.


Higher static pressure and reduced noise
The use of multiple, overlapping arc shaped fan blades makes it possible to optimize the chord lenght and blade outlet angle. This results in higher static pressure and quieter operation over the entire operating range.
Rotating currents for reduced loss
The use of a thinner scroll allows rectification of rotating currents within the scroll.
Higher static pressure
The fan diameter has been increased and blade width optimized, resulting in higher static pressure.
Higher static pressure and reduced pressure loss
In addition to increasing the scroll wrap angle and boosting the static pressure, the outflow angle has been optimized to reduce pressure loss in the outflow area.
α
θ

- **Indoor Unit Connectability**
  The indoor unit is connectable up to 130% of outdoor unit capacity

IV. Line-up

VAM-FA: ventilation

VAM150FA

VAM250FA

VAM350FA

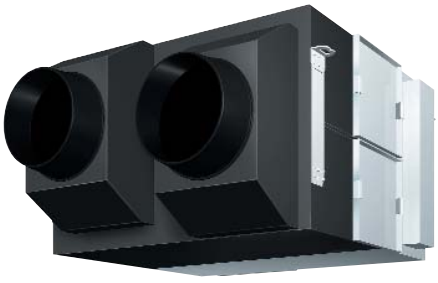
VAM500FA

VAM650FA

VAM800FA

VAM1000FA

VAM1500FA



VAM2000FA

VKM-GM: ventilation, DX coil and humidifier

VKM50GM

VKM80-100GM

VKM-G: ventilation and DX coil

VKM50G

VKM80-100G

V. Control Systems

HRV can also be connected to :

DS-net

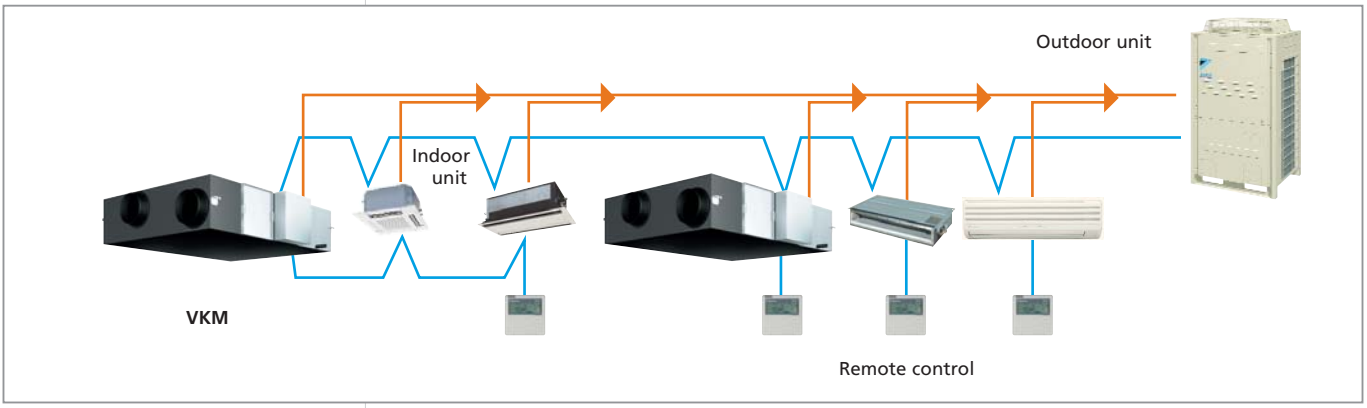
intelligent touch Controller

intelligent Manager

BACnet Gateway

SMS-IF

Operation of the air conditioner using the remote control is interlocked with HRV operation, greatly simplifying overall system control. The same remote control centralizes air conditioning and ventilation operations, obviating any need for HRV remote control installation work. Using a centralized remote control also frees the user to choose from a wide range of control systems that integrate air conditioning and ventilation. By incorporating a variety of centralized control equipment, the user can build a large, high grade centralized control system.



BRC1D52

air conditioner remote control

BRC301B61

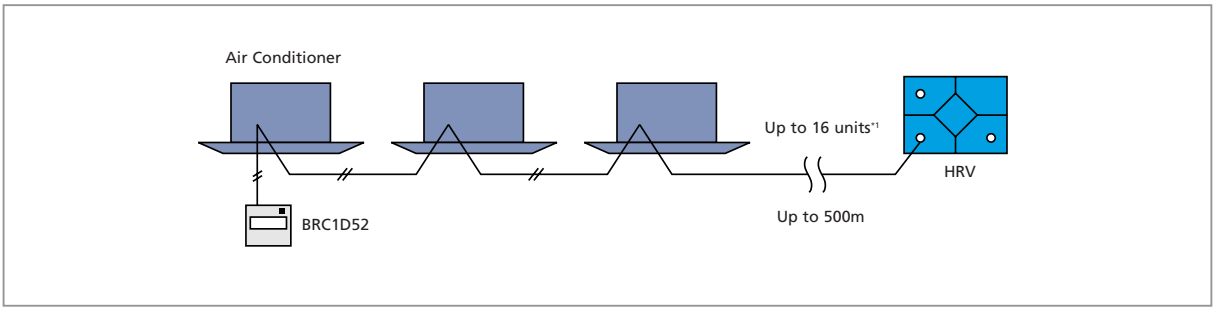
VAM remote control

1 Individual Control Systems

- Simultaneous ON/OFF of HRV and air conditioner (BRC1D52)
- ON/OFF of HRV (BRC301B61)
- Independent operation of HRV
- Airflow rate switching (initial setting)
- Ventilation mode switching (initial setting)
- Self diagnostic functions
- Filter sign display and reset
- Timer settings, simultaneous control with air conditioner (BRC1D52)
- Timer settings (BRC301B61)
- Fresh-up mode switching (Selectable: supply rich mode, exhaust rich mode; initial setting)

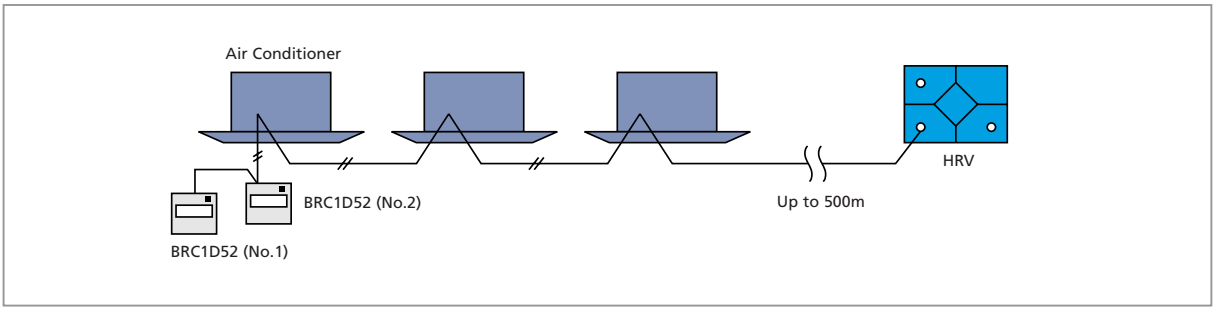
→ **A variety of control systems can be controlled using only the BRC1D52**

- **Group Control**
  One air conditioner remote control simultaneously controls up to 16 air conditioning and HRV units.

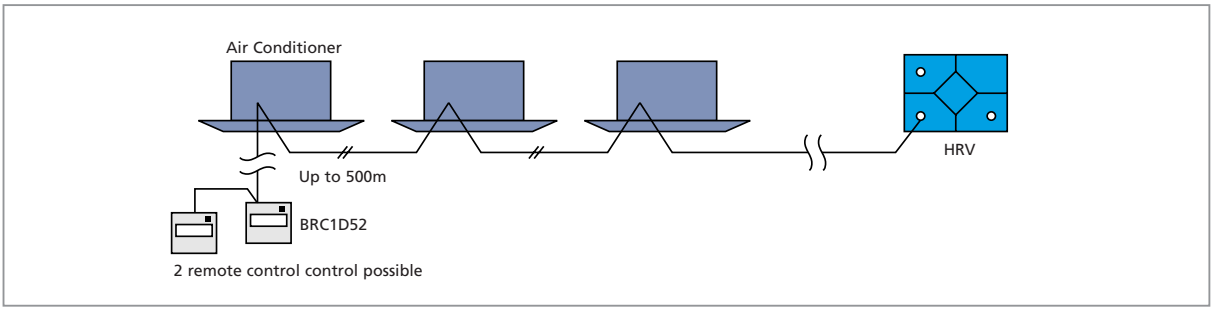


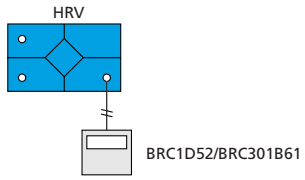
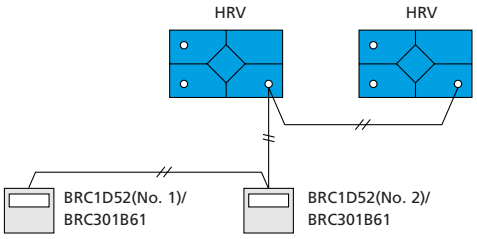
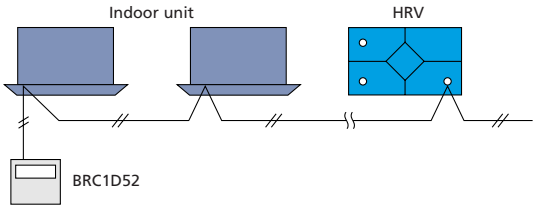
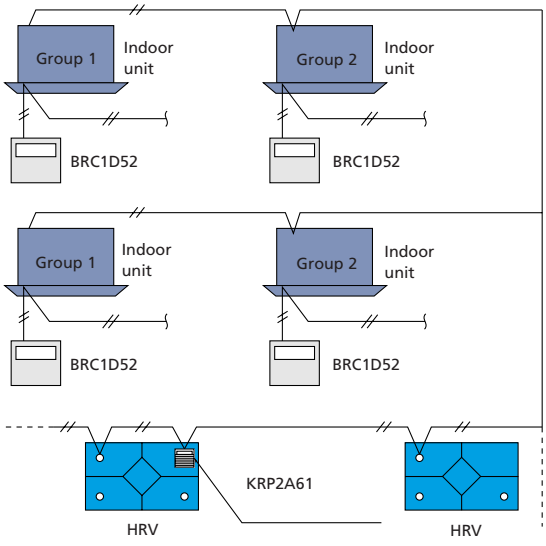
*1: Count VKM unit as two air conditioners. For details, see Table 1 on page 15.

- **Control using 2 remote controls**
  Allows control of air conditioning and HRV units from two locations by connecting two air conditioner remote controls. (group control is possible)



- **Long-distance Remote Control**
  Remote operation control - from a distant control room for example, is possible thanks to wiring of up to 500 m. (2 remote control control possible)



		System construction	System characteristics	Necessary accessories
INDEPENDENT OPERATION SYSTEM	INDEPENDENT OPERATION		• Independent operation of HRV is possible • Air conditioner remote control can be used	BRC1D52 BRC301B61
	SIMULTANEOUS OPERATION OF MULTIPLE UNITS		• Operation is possible using 2 remote controls • Multiple HRV units can be simultaneously controlled in batch. (Up to 8 HRV units can be connected)	BRC1D52 BRC301B61
AIR CONDITIONING INTERLOCKED CONTROL (VRV, SKY AIR) SYSTEM	STANDARD SYSTEM	 During group control operation, the VKM unit has a capacity equivalent to 2 standard indoor units. Up to 16 standard indoor units can be connected at the same time. Connectable indoor units: VKM 0 1 2 3 4 5 6 7 8 Max. n° of VRV 16 14 12 10 8 6 4 2 0 Note: The VKM uses 2 remote control addresses per unit. The number of units that can be group controlled is shown above.	• Multiple VRV indoor units or HRV units can be connected and controlled in batches, with interlocked operation of HRV and air conditioners by using the air conditioner remote control. • The HRV unit can also be operated independently using the remote control for the indoor unit, even if the indoor unit is not in operation	BRC1D52
	MULTIPLE GROUPS INTERLOCKED OPERATION SYSTEM		• Can control interlocked operation of multiple groups of VRV or Sky Air indoor units • When one of the multiple groups operates, HRV units are interlocked and operate simultaneously	BRC1D52

BRC301B61 only available for VAM-FA

2 Centralised Control Systems

By combining the (optional) centralised control equipment listed below, the user can achieve a wide range of comprehensive centralised control systems for air conditioning and ventilation.

DCS302C51

Centralised remote control - DCS302C51

- 64 groups (zones) of indoor units can be controlled individually by means of the LCD remote control.
- Max. 64 groups (128 indoor units) can be controlled
- Max. 128 groups (128 indoor units) can be controlled via 2 centralised remote controls, in separate locations.
- Zone control
- Malfunction code display
- Max. wiring length 1,000 m (total : 2,000 m)
- Combination with unified ON/OFF control, schedule timer and BMS system
- Airflow volume and direction can be controlled individually for indoor units in each group operation.
- Ventilation volume and mode can be controlled for Heat Reclaim Ventilation (VKM).
- Up to 4 ‘operation/stop’ pairs can be set per day by connecting a schedule timer.

DCS301B51

Unified ON/OFF control - DCS301B51

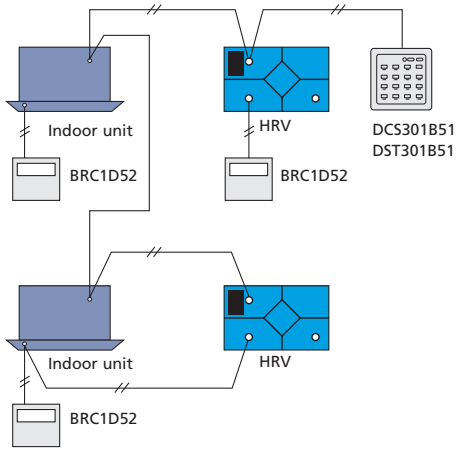
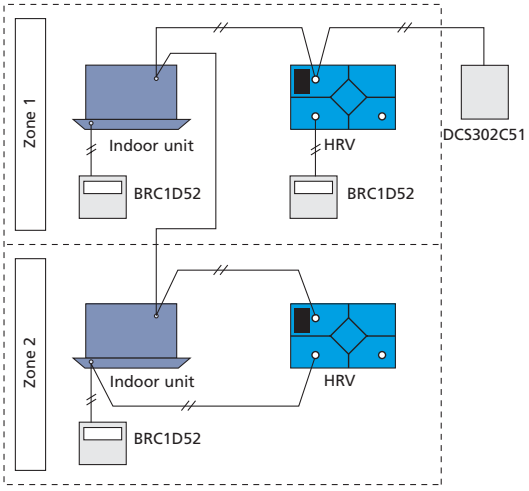
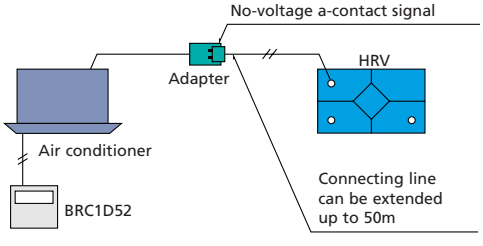
- One unit can turn ON/OFF up to 16 groups (128 units) of HRV and air conditioner units individually or in a batch.
- Lamps display operation and failure status of the connected HRV and air conditioner units.
- Up to 8 units can be linked to allow centralized control of up to 128 units.

DST301B51

Schedule timer - DST301B51

- One unit can control the operation of up to 128 HRV and air conditioner units on a weekly schedule.
- Can set two ON/OFF operations per day for a period of one week.

Number of units that can be connected per system	
Centralised remote control	2 units
Unified on/off control	8 units
Schedule timer	1 unit

		System construction	System characteristics	Necessary accessories
AIR CONDITIONING INTERLOCKED CENTRALISED CONTROL SYSTEM	BATCH / INDIVIDUAL CONTROL SYSTEM		**Unified ON/OFF control - DCS301B51** • One control can control the on/off operation of 16 groups of units collectively or individually • Up to 8 controls can be installed in one centralised transmission line (in one system), which enables control of up to 128 groups. (16 groups x 8 = 128 groups) **Schedule timer - DST301B51** • One schedule timer can control the weekly schedule of up to 128 units HRV remote control can set the individual operation of each HRV unit Control system can be expanded depending on its purposes by combining a variety of centralised control equipment	DCS301B51 or DST301B51, BRC1D52 If necessary: DCS302C51
	ZONE CONTROL SYSTEM		Centralised remote control - DCS302C51 • The centralised remote control provides settings and monitoring functions and can control up to 128 VRV and HRV units. A special adapter is required to connect Sky Air to the centralised line. • Control is possible in 3 different patterns: individual, batch or zone • Multiple groups can be controlled within the same zone • Multiple HRV units can be operated independently • System without air conditioning or HRV remote controls can be constructed • Control system can be expanded depending on requirements by combining a variety of centralised control systems	DCS302C51, BRC1D52 If necessary: DCS301B51, DST301B51
COMBINATION WITH OTHER TYPES OF AIR CONDITIONERS			• Simultaneous operation of HRVs and air conditioners is possible via BRC1D52 • Use of the HRV remote control enables to change settings or operate HRVs independently	Connection adapter (no-voltage-a-contact-signal)

VI. Specifications

VAM-FA

Ventilation

VAM800FA

VAM-FA			150	250	350	500	650	800	1000	1500	2000
Temperature exchange efficiency (%)		ultra-high	74	72	75	74	74	74	75	75	75
		high	74	72	75	74	74	74	75	75	75
		low	79	77	80	77	77	76	76.5	78	78
Enthalpy exchange efficiency (%)	for heating	ultra-high	64	64	65	62	63	65	66	66	66
		high	64	64	65	62	63	65	66	66	66
		low	69	68	70	67	66	67	68	68	70
	for cooling	ultra-high	58	58	61	58	58	60	61	61	61
		high	58	58	61	58	58	60	61	61	61
		low	64	62	67	63	63	62	63	64	66
Power Supply		VE	1 ~, 220~240V, 50Hz								
Sound pressure level dB(A)	Heat exchange mode	ultra-high	27-28.5	28-29	32-34	33-34.5	34.5-35.5	36-37	36-37	39.5-41.5	40-42.5
		high	26-27.5	26-27	31.5-33	31.5-33	33-34	34.5-36	35-36	38-39	38-41
		low	20.5-21.5	21-22	23.5-26	24.5-26.5	27-28	31-32	31-32	34-36	35-37
	Bypass mode	ultra-high	27-28.5	28-29	32-34	33.5-34.5	34.5-35.5	36-37	36-37	40.5-41.5	40-42.5
		high	26.5-27.5	27-28	31-32.5	32.5-33.5	34-35	34.5-36	35.5-36	38-39	38-41
		low	20.5-21.5	21-22	24.5-26.5	25.5-27.5	27-28.5	31-33	31-32	33.5-36	35-37
Casing			galvanised steel plate								
Insulation Material			self-extinguishable urethane foam								
Dimensions	HxWxD	mm	269 x 760 x 509		285 x 812 x 800		348 x 988 x 852		348x988x1,140	710x1,498x852	710x1,498x1,140
Weight		kg	24		33		48		61	132	158
Heat Exchange System			air to air cross flow total heat (sensible heat + latent heat) exchange								
Heat Exchange Element Material			specially processed non-flammable paper								
Air Filter			multidirectional fibrous fleeces								
Fan	Type		sirroco fan								
	Air Flow Rate (m^3/h)	ultra-high	150	250	350	500	650	800	1,000	1,500	2,000
		high	150	250	350	500	650	800	1,000	1,500	2,000
		low	110	155	230	350	500	670	870	1,200	1,400
	External static pressure (Pa)	ultra-high	69	64	98	98	93	137	157	137	137
		high	39	39	70	54	39	98	98	98	78
		low	20	20	25	25	25	49	78	49	59
Motor Output		kW	0.030 x 2		0.090 x 2		0.140 x 2	0.230 x 2		0.230 x 4	
Connection Duct Diameter		mm	Ø 100	Ø 150		Ø 200		Ø 250		Ø 350	
Unit ambient condition			-15°C ~ +50°CDB, 80% RH or less								

Notes:
- Air flow rate can be changed over to low mode or high mode.
- Sound pressure level is measured at 1.5m below the center of the body.
- Sound pressure level is measured in an anechoic chamber.
  Sound pressure levels generally become higher than this value depending on the operating conditions, reflected sound, and peripheral noise.
- The sound pressure level at the air discharge port is about 8dB higher than the unit's sound level.
- Even when the outdoor temperature is below -15°C, the system is operable down to -20°C with the preheater installed at the outdoor air intake side.

VKM-GM

Ventilation, DX coil & humidifier

VKM80-100GM

					VKM50GM	VKM80GM	VKM100GM
DX coil capacity	Cooling			kW	4.71	7.46	9.12
	Heating			kW	5.58	8.79	10.69
Casing	Material				Galvanised steel plate		
Dimensions	Height			mm	387	387	387
	Width			mm	1764	1764	1764
	Depth			mm	832	1214	1214
Weight				kg	102	120.0	125.0
Fan	Type				Sirocco fan		
	Air flow rate	Heat exchange mode	Ultra-high	m^3/h	500	750	950
			High	m^3/h	500	750	950
			Low	m^3/h	440	640	820
		Bypass mode	Ultra-high	m^3/h	500	750	950
			High	m^3/h	500	750	950
			Low	m^3/h	440	640	820
	External static pressure		Ultra-high	Pa	160	140	110
			High	Pa	120	90	70
			Low	Pa	100	70	60
	Motor	Output		W	2 x 280	2 x 280	2 x 280
Temperature exchange efficiency			Ultra-high	%	76	78	74
			High	%	76	78	74
			Low	%	77.5	79	76.5
Enthalpy exchange efficiency	Cooling		Ultra-high	%	64	66	62
			High	%	64	66	62
			Low	%	67	68	66
	Heating		Ultra-high	%	67	71	65
			High	%	67	71	65
			Low	%	69	73	69
Humidifier	System				Natural evaporating type		
	Amount			kg/h	2.7	4.0	5.4
	Feed water pressure			MPa	0.02～0.49	0.02～0.49	0.02～0.49
	N° of elements				1	1	2
Operation range	Around unit				0°C～40°CDB, 80% RH or less		
	Outdoor air				-15°C～40°CDB, 80% RH or less		
	Return air				0°C～40°CDB, 80% RH or less		
Sound level - 230V	Heat exchange mode	Sound pressure	Ultra-high	dBA	37.5	39	39.5
			High	dBA	35.5	37	37.5
			Low	dBA	33	34	34.5
	Bypass mode	Sound pressure	Ultra-high	dBA	37.5	39	39.5
			High	dBA	35.5	37	37.5
			Low	dBA	33	34	34.5
Piping connection	Liquid	Type			flare connection	flare connection	flare connection
		Diameter		mm	6.4	6.4	6.4
	Gas	Type			flare connection	flare connection	flare connection
		Diameter		mm	12.7	12.7	12.7
	Water supply			mm	6.4	6.4	6.4
	Drain				PT3/4 external thread		
Insulation material					Self-extinguishable urethane foam		
Heat exchange system					Air to air cross flow total heat (sensible + latent heat) exchange		
Heat exchange element					Specially processed non-flammable paper		
Air filter					Multidirectional fibrous fleeces		
Connection duct diameter				mm	Ø 200	Ø 250	Ø 250
Power supply				V1	1～, 50Hz, 220-240V		

Notes:
- Indoor temperature: 27°CDB, 19°CWB, outdoor temperature: 35°CDBIndoor temperature: 20°CDB, outdoor temperature: 7°CDB, 6°CWB
- Humidifying capacity is based on: Indoor temperature: 20°CDB, 15°CWB, outdoor temperature: 7°CDB, 6°CWB
- Operation sound is measured at 1.5m below the center of the body.
- Sound values are measured in an anechoic chamber built in accordance with JIS C 1502 condition. Operating sound level generally becomes higher than this value depending on the operating conditions, reflected sound, and peripheral noise.
- The sound level at the air discharge port is about 8dB higher than the unit's operating sound.
- For operation in a quiet room, it is required to take measures to lower the sound, for example install more than 2m soft duct near the air discharge grill.
- Air flow rate can be changed over to Low mode or High mode.
- Normal amplitude, input, efficiency depend on the other above conditions

VKM-G

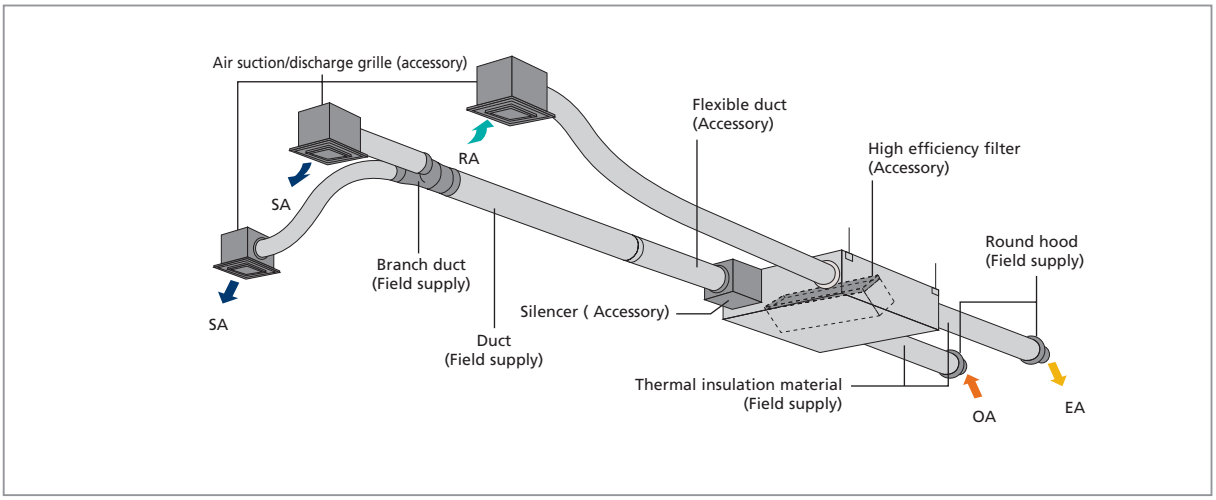
Ventilation & DX coil

VKM80-100G

					VKM50G	VKM80G	VKM100G
DX coil capacity	Cooling			kW	4.71	7.46	9.12
	Heating			kW	5.58	8.79	10.69
Casing	Material				Galvanised steel plate		
Dimensions	Height			mm	387	387	387
	Width			mm	1764	1764	1764
	Depth			mm	832	1214	1214
Weight				kg	96.0	109.0	114.0
Fan	Type				Sirocco fan		
	Air flow rate	Heat exchange mode	Ultra-high	m^3/h	500	750	950
			High	m^3/h	500	750	950
			Low	m^3/h	440	640	820
		Bypass mode	Ultra-high	m^3/h	500	750	950
			High	m^3/h	500	750	950
			Low	m^3/h	440	640	820
	External static pressure		Ultra-high	Pa	180	170	150
			High	Pa	150	120	100
			Low	Pa	110	80	70
	Motor	Output		W	2 x 280	2 x 280	2 x 280
Temperature exchange efficiency			Ultra-high	%	76	78	74
			High	%	76	78	74
			Low	%	77.5	79	76.5
Enthalpy exchange efficiency	Cooling		Ultra-high	%	64	66	62
			High	%	64	66	62
			Low	%	67	68	66
	Heating		Ultra-high	%	67	71	65
			High	%	67	71	65
			Low	%	69	73	69
Operation range	Around unit				0°C~40°CDB, 80% RH or less		
	Outdoor air				-15°C~40°CDB, 80% RH or less		
	Return air				0°C~40°CDB, 80% RH or less		
Sound level - 230V	Heat exchange mode	Sound pressure	Ultra-high	dBA	38.5	41	40.5
			High	dBA	36.5	38	38.5
			Low	dBA	34.5	36	36
	Bypass mode	Sound pressure	Ultra-high	dBA	38.5	41	40.5
			High	dBA	36.5	38	38.5
			Low	dBA	34.5	36	36
Piping connection	Liquid	Type			flare connection	flare connection	flare connection
		Diameter		mm	6.4	6.4	6.4
	Gas	Type			flare connection	flare connection	flare connection
		Diameter		mm	12.7	12.7	12.7
	Drain				PT3/4 external thread		
Insulation material					Self-extinguishable urethane foam		
Heat exchange system					Air to air cross flow total heat (sensible + latent heat) exchange		
Heat exchange element					Specially processed non-flammable paper		
Air filter					Multidirectional fibrous fleeces		
Connection duct diameter				mm	Ø 200	Ø 250	Ø 250
Power supply				V1	1~, 50Hz, 220-240V		

Notes:
- Cooling: indoor temperature: 27°CDB, 19°CWB, outdoor temperature: 35°CDB
- Heating: indoor temperature: 20°CDB, outdoor temperature: 7°CDB, 6°CWB
- Operation sound is measured at 1.5m below the center of the body.
- Sound values are measured in an anechoic chamber built in accordance with JIS C 1502 condition. Operating sound level generally becomes higher than this value depending on the operating conditions, reflected sound, and peripheral noise.
- The sound level at the air discharge port is about 8dB higher than the unit's operating sound.
- Air flow rate can be changed over to Low mode or High mode.
- Normal amplitude, input, efficiency depend on the other above conditions

VII. Options



VAM remote control

Air conditioner remote control

Centralised remote control

Unified ON/OFF control

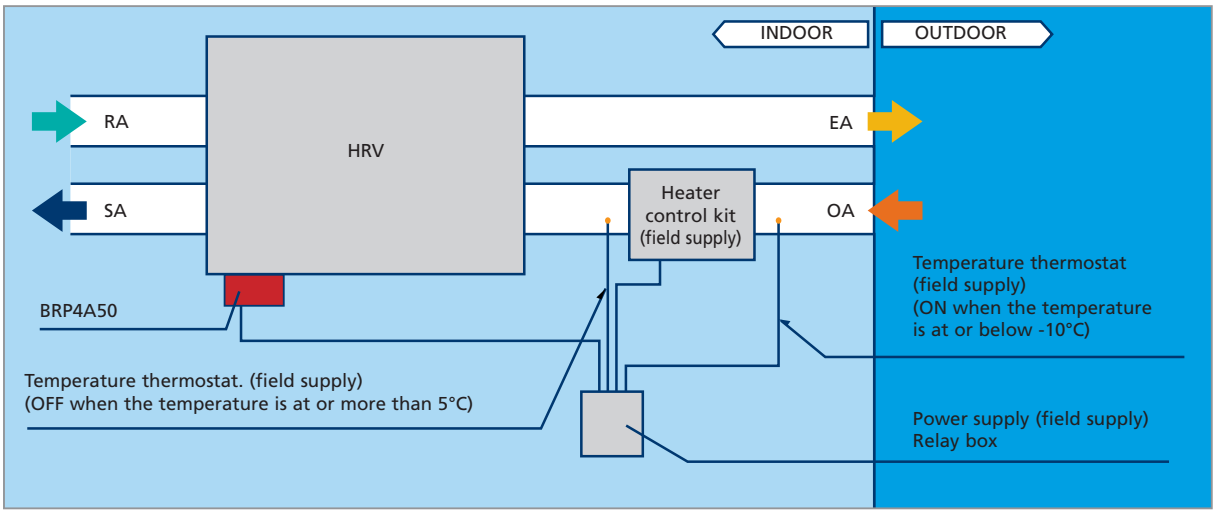
Schedule timer

Description			Reference									
VAM remote control			BRC301B61*5									
Air conditioner remote control			BRC1D52									
Centralised remote control			DCS302C51									
Unified on/off control			DCS301B51									
Schedule timer			DST301B51									
PC board adapter	Wiring adapter for electrical appendices		KRP2A61									
	For humidifier (running ON signal output)		KRP50-2									
	For heater control kit		BRP4A50									
	For wiring	indoor unit	FXZQ	FXFQ	FXCQ	FXKQ	FXMQ	FXSQ	FXDQ-N	FXHQ	FXAQ	FXLQ/FXNQ
		Reference	KRP1B57*	KRP1B59*	KRP1B61*	KRP1D61			KRP1B56	KRP1B3	-	KRP1B61
	Installation box for adapter PCB		KRP1B101 *4/*6	KRP1D98 *2/*3	KRP1B96 *2/*3	-	-	KRP4A91 *5	KRP1B101 *4/*6	KRP1C93 *3	KRP4A93 *2/*3	-

Notes : 1. Installation box is necessary for each adapter marked with *
2. Up to 2 adapters can be fixed per installation box
3. Only 1 installation box can be installed per indoor unit
4. Up to 2 installation boxes can be installed per indoor unit
5. Necessary when operating VAM independently. When operating interlocked with other air conditioners, use the remote controls of the air conditioners

1 PC BOARD ADAPTER FOR HEATER CONTROL KIT - BRP4A50

When the installation of an electric heater is required in a cold region, this adapter with an internal timer function eliminates the complicated timer connecting work necessary with conventional heaters.



Notes when installing:

- Examine fully installation location and specification for using the electric heater based on the standards and regulations of each country.
- Supply the electric heater and safety production devices (such as a relay and a thermostat etc) which meet the on site standards and regulations of each country
- Use a non-flammable connecting duct to the electric heater. Be sure to allow 2m or more between the electric heater and HRV for safety.
- For the HRV units, use a different power supply from that of the electric heater and install a circuit breaker for each of them.

Silencer

Duct adapter

Description	VAM150FA	VAM250FA	VAM350FA
High efficiency filter	YAFM323F15	YAFM323F25	YAFM323F35
Replacement for air filter	YAFF323F15	YAFF323F25	YAFF323F35

Description		VAM500FA	VAM650FA	VAM800FA
Silencer	Reference	KDDM24A50	KDDM24A100	
	Nom. piping diameter	Ø 200mm	Ø 250mm	
High efficiency filter		YAFM323F50	YAFM323F65	
Replacement for air filter		YAFF323F50	YAFF323F65	

Description		VAM1000FA	VAM1500FA	VAM2000FA
Silencer	Reference	KDDM24A100	K-DDM24A100 x 2	
	Nom. piping diameter	Ø 250mm		
High efficiency filter		YAFM323F100	YAFM323F65	YAFM323F100 x 2
Replacement for air filter		YAFF323F100	YAFF323F65	YAFF323F100 x 2
Duct adapter	Reference	-	YDFA25A1	
	Nom. piping diameter	-	Ø 250mm	

Description		VKM50G(M)	VKM80G(M)	VKM100G(M)
Silencer	Reference	-	K-DDM24B100	
	Nom. piping diameter	-	Ø 250mm	
High efficiency filter		KAF241G80M	KAF241G100M	
Replacement for air filter		KAF242G80M	KAF242G100M	

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UKEPCE05-44B / 05.06 / Swim / La Movida

Printed on elemental chlorine free paper / Printed by Portishead Press